

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claim 1 has been amended to correct a typographical error therein.

Applicant believes that the above change answers the Examiner objection to the claims, and respectfully requests withdrawal thereof.

The Examiner has rejected claims 1-6 and 8 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,669,073 to Wakabayashi et al. in view of U.S. Patent 5,748,579 to Miyagi et al. The Examiner has further rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Wakabayashi et al. in view of U.S. Patent 4,984,225 to Ando.

The Wakabayashi et al. patent discloses an optical disk drive apparatus which includes a swing arm carrying a focussing lens for focussing a light beam to scan an optical disk mounted on a spindle of a spindle motor.

The Miyagi et al. patent discloses an optical pickup for magneto optical recording apparatus

The subject invention also relates to an optical disc apparatus having a swing arm carrying a focussing lens for focussing a light beam to scan an optical disc mounted on a spindle of a spindle motor.

The Examiner has indicated that Wakabayashi et al. discloses substantially all of the elements of claim 1, while Miyagi et al. discloses an optical lens assembly comprising "a perpendicularly-reflecting optical element (16) connected to the focusing lens (6), said perpendicularly-reflecting optical element having a reflective surface facing a side of the focusing lens situated away from the information surface of the optical disc (2), when supported by the spindle, and causing reflection of a laser beam traveling in a general direction between the swing axis and the focusing axis so as to travel through the focusing lens generally along the focusing axis, and wherein the movable magnetic focusing means (10) is connected to the perpendicularly-reflecting optical element in a position on a side of said of said perpendicularly-reflecting optical element opposite from said reflecting surface. Miyagi et al. also teaches the magnetic focusing means (10) operating with the driving coil (6) through the air gap (11)."

Claim 1 claims, in part:

"...the optical lens assembly comprises, near said free end of the arm assembly, a perpendicularly-reflecting optical element connected to the focussing lens, said perpendicularly-reflecting optical element having a reflective surface facing a side of the focussing lens situated away from the information surface of the optical disc, when supported by the spindle, and causing reflection of a laser beam travelling in a general direction between the swing axis and the focussing axis so as to travel through the focussing lens generally along the focussing axis, and wherein

the movable magnetic focussing means is connected to the perpendicularly-reflecting optical element in a position on a side of said perpendicularly-reflecting optical element opposite from said reflecting surface."

Applicant would like to point out that contrary to what is claimed in, for example, claim 1, the rising up mirror 16 of Miyagi et al., which the Examiner equates to the perpendicularly-reflecting optical element of the subject invention, is not connected to the focussing lens 4. Rather, the rising up mirror 16 is attached to the body case 15 while the focussing lens 4 is connected to lens holder 5 which is driven up/down by the driving coil 6 in cooperation with the yoke portions 18a and 18b in response to magnetic flux from magneto 10. Further, the driving coil 6, which the Examiner equates to the movable magnetic focussing means of the subject invention, is not connected to the rising up mirror 16 (the perpendicularly-reflecting optical element of the subject invention).

Furthermore, Applicant notes that claim 1 states "a stationary magnetic focussing means associated with the supporting assembly for magnetically cooperating, through an intermediate air gap, with said movable focussing means in order to generate a magnetic force vector having a vector component parallel to said focussing axis so as to drive the focussing lens assembly along said focussing axis, wherein the stationary magnetic focusing means and the movable magnetic focussing means are disposed and cooperate

such that said force vector component intersects said focussing lens area..."

Applicant submits that since the driving coil 6 and the yoke portions 18a and 18b are remote from the focussing lens 4, the force vector component exerted thereby cannot intersect the focussing lens area.

Applicant further would like to note that it is at best questionable whether the Miyagi et al. arrangement is usable in a swing-arm type scanning construction as in Wakabayashi et al.

Claim 4 states:

"...the swing arm assembly is bounded by spaced virtual parallel flat planes extending perpendicularly to the swing axis, a first plane being nearer to the optical disc, when supported by the spindle, and a second plane being more remote from said optical disc;

at least a portion of the reflecting element is inwardly spaced from said second plane thereby forming an intermediate space between the perpendicularly-reflecting optical element and said second plane; and

the stationary magnetic focussing means extends into said intermediate space between the perpendicularly-reflecting optical element and said second plane, thus occupying at least a portion of said intermediate space."

The Examiner has indicated that this limitation is met by Wakabayashi et al. and states"

"...at least a portion of the reflecting element (35) is inwardly spaced from said second plane, so that an intermediate space is provided between the reflecting element and said second plane; and the stationary magnetic focussing means extend into said intermediate space between the reflecting element and said second plane, thus occupying at least a portion of said intermediate space. (Although the focusing coil of

element 39 is what really occupies the intermediate space, it serves the same purpose as the stationary focusing means.)".

Applicant submits that the Examiner is mistaken. The focusing coil of element 39 is actually equivalent to the movable magnetic focussing means of the subject invention which cooperates with the stationary magnetic focussing means through an air gap. The magnetic yokes 40a, 40b, permanent magnetics 41a, 41b, and magnetic yoke 42 are equivalent to the stationary magnetic focussing means of the subject invention. It should be noted that Wakabayashi et al. specifically states, at col. 3, lines 46-53:

"The focusing coil 39 is inserted into an air gap 44 formed by a focusing magnetic circuit consisting of magnetic yokes 40a, 40b, permanent magnets 41a, 41b and a magnetic yoke 42. A focusing actuator 43 is comprised of the focusing coil 39, which is movable, and the focusing magnetic circuit mentioned above, which is fixed on the chassis 32."

Hence, the stationary magnetic focussing means, i.e., the focusing magnetic circuit of Wakabayashi et al. does not even partially enter the intermediate space formed between the "perpendicularly-reflecting optical element and said second plane".

The Ando patent discloses a system for applying magnetic field to opto-magnetic memory, in which an electromagnetic coil 32 cooperates with a core portion 34 having a magnetic flux supplying section 37 and extending section 36 to provide a magnetic flux from magnetic flux provision surface 37A, i.e., lower surface of

extending section 36, toward the area of opto-magnetic recording film 24 (col. 6, lines 13-51).

Claim 7 states:

"the reflecting surface of the perpendicularly-reflecting optical element in the focussing lens assembly is disposed in an inclined plane relative to the swing axis of the swing arm assembly;

said movable electrical magnetic coil means is disposed generally in an inclined plane parallel to the reflecting surface; and

said stationary magnetic circuit means comprises an inclined face directed towards said movable electrical magnetic coil means, such that the said intermediate air gap between said movable electrical magnetic coil means and said stationary magnetic circuit means is disposed in an inclined plane generally parallel to said inclined reflective surface of the perpendicularly-reflecting optical element in the focussing lens assembly."

The Examiner now states "Ando teaches in figure 4 the apparatus wherein said movable electrical magnetic coil means (32) are disposed generally in an inclined plane; and said stationary magnetic circuit (30) means comprise an inclined face such that the said air gap between said movable electrical magnetic coil means and said stationary magnetic circuit means is disposed in an inclined plane."

Applicant submits that this statement by the Examiner is ridiculous! It should be remembered that claim 7 depends from claim 6 which, in turn, depends from claim 1. As such, the movable and stationary electrical magnetic coil means relate to the focussing of an optical beam on a record carrier. A simple reading of Ando

will show that coil means 32, core portion 34, and flux providing sections 37 and 36 have nothing to do with the focussing of an optical beam on a recording disk. Rather, these elements of Ando generate a magnetic field needed to effectuate opto-magnetic recording. Further, while Fig. 4 of Ando shows these elements of Ando along with the disk 20 raised at an angle relative to the drive spindle, as indicated in Ando at col. 4, lines 26-28, "FIG. 4 is a sectional view showing the system shown in FIG. 3 in an operation for loading or ejecting a data recording medium". There is no disclosure or suggestion that the components of Ando are meant to be operated in this position.

In view of the above, Applicant believes that the subject invention, as claimed, is not rendered obvious by the prior art, and as such, is patentable theretoever.

Applicant believes that this application, containing claims 1, 2 and 4-8, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by 
Edward W. Goodman, Reg. 28,613
Attorney
Tel.: 914-333-9611